

CHOICE OF TREATMENT IN THE MANAGEMENT OF BLEEDING OESOPHAGEAL VARICES IN PATIENTS WITH CIRRHOSIS

by

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URGENT control of haemorrhage is a basic surgical principle, but it is not always achieved most effectively by surgery. Emergency portacaval shunt can undoubtedly control bleeding from oesophageal varices, but the huge mortality in non-selected patients, as reported by Orloff, is prohibitive (Orloff et al, 1975). The idea of selective management based on clinical and laboratory findings was first suggested by Child as far back as 1964 when he introduced his now widely used classification of patients with cirrhosis (Child, 1964). However, even if one follows his concept of reserving portal decompression for A cases, the results of shunt surgery are often disappointing. Most controlled trials have failed to show any clear-cut advantage following either prophylactic or therapeutic shunt, and thus there has followed a reappraisal of the value of shunt. Realizing that the vast majority of patients with bleeding varices will never be fit for shunt, how should these shunt rejects be managed?

First it is necessary to establish that bleeding is coming from the oesophageal varices, since it is accepted that patients with cirrhosis may be bleeding from other lesions. However, rigid adherence to the now popular policy of routine emergency endoscopy in all patients should be resisted. The pendulum has swung too far since there is no evidence that emergency endoscopy in all patients with haematemesis reduces mortality (Sandlow et al, 1974; Morris et al, 1975; Lee et al, 1977). It must also be acknowledged that it does not always provide the correct diagnosis since observer error may be as high as 30 per cent (Conn et al, 1967). The much higher incidence of acute mucosal lesions in the American series, when compared with the figures for the British Isles, may represent a higher incidence of alcoholic patients, or perhaps reflect over-vigorous lavage, which can produce artefactual bleeding. Certainly, the practice of inducing vomiting in order to displace residual clot while the endoscope is still in place in the stomach, may explain Sagawa's 15 per cent incidence of the Mallory-Weiss syndrome (Sagawa et al, 1973). The fact that varices are not actually bleeding at the time of examination does not exclude them as the source of bleeding. Indeed, it is unusual to demonstrate active bleeding into the lumen of the oesophagus, even by direct injection of contrast medium into the left gastric vein (Lunderquist, 1977). It is probably acceptable to assume the diagnosis on the basis of exclusion of other sites of bleeding, although by using a wide bore rigid oesophagoscope to distend the varices, one may demonstrate the site of bleeding when the thinner, flexible endoscope has failed to do so. All patients should have endoscopy at some stage to confirm the diagnosis, but emergency endoscopy should be selective.

Massive haemorrhage in patients with cirrhosis is generally due to varices, and in this situation, therapeutic trial using the four channel Sengstaken tube is justified. It minimizes blood loss, which is poorly tolerated by these patients, and when properly managed, oesophageal tamponade gives rise to very few of the problems listed by Conn (Conn, 1958). True, it may also control bleeding from oesophagitis or the Mallory-Weiss syndrome, but this is no disadvantage since the diagnosis will become apparent later. With the bleeding controlled, the patient can be properly resuscitated, more fully investigated, and the usual measures taken to combat coma. The next morning, when the patient is haemodynamically stable, the laboratory data available, the medical team fresh, and the theatres fully staffed, a decision is taken on the further therapy. Oesophageal tamponade is not a definitive treatment and the oesophageal balloon should be deflated within 24 hours and a careful watch kept for rebleeding. About 60-70 per cent of patients will rebleed within 48 hours, and it is therefore wise to keep the deflated tube in place during this period. Those that rebleed require immediate reinflation of the balloons and an urgent decision taken on further management. Our policy is to allocate patients to one of four treatment categories on the basis of clinical status.

TREATMENT CATEGORIES

1. *Rejection*

Patients with the triad of hepatic precoma, marked jaundice and gross ascites, are not improved by any operative procedure. However, it is still worthwhile continuing with tamponade and the usual supporting measures since, surprisingly, a few patients will rally even from this perilous clinical condition. Should survival occur, further definitive measures can be considered later.

2. *Injection*

Even in the absence of encephalopathy, the patient with jaundice and ascites fares badly following emergency laparotomy or thoracotomy. In this situation, injection sclerotherapy using a wide bore rigid oesophagoscope controls bleeding effectively in 90 per cent of patients, and 80 per cent survive to leave hospital (Johnston and Rodgers, 1973). More recently, the flexible endoscope has been used, but although the instrument is simpler to pass, the actual injection is more difficult unless one employs an outer sheath to compress and delineate the varices prior to injection (Williams, 1977). Also, if bleeding is severe, the sucker in the flexible endoscope is insufficiently powerful to remove the accumulating blood from the lumen of the oesophagus. In addition, the flexible instrument does not prevent rapid dissemination of the sclerosant away from the injection site, and therefore presumably achieves less of the desired intimal damage that can be obtained by means of the rigid oesophagoscope (Johnson, 1977). Percutaneous transhepatic sclerosis via the coronary and short gastric veins is attractive in that general anaesthesia is not required (Lunderquist and Vang, 1974). However, the technique is not easy canulation being achieved in only 40 of 62 patients attempted (Dick, 1977). Also, there is a high incidence of technical snags and complications (Scott et al, 1976).

Due to the falling popularity of shunt surgery, there has been a remarkable upsurge of interest in injection therapy in its various forms. It is certainly the least traumatic of the available methods, but suffers from the disadvantage that sclerosis tends to be temporary and bleeding recurs as the veins recanalize. It is therefore necessary, following recovery from the acute episode, to decide whether the patient should have repeated prophylactic injections or injection therapy only when recurrent bleeding occurs. In some patients, improvement in liver function may permit consideration of subsequent oesophageal transection or very occasionally, shunt surgery.

3. Transection

Many patients with reasonably good liver function will never be suitable for shunt because of advanced years, or past encephalopathy, or the presence of diabetes, etc. In this situation, it is obviously desirable to obtain a more prolonged result than that achieved by injection methods. Since the vast majority of haemorrhages occur in the 5 cm segment of the oesophagus above the cardia, direct surgery in this region seems logical. The Boerema-Crile ligation technique and the Walker mucosal transection methods of variceal obliteration, although widely adopted, require thoracotomy and carry a 30 to 40 per cent mortality in the presence of acute bleeding. The use of the Boerema Button or Prioton Clip permits full thickness oesophageal transection via the abdomen, but the high morbidity from stricture formation detracts from the undoubted simplicity and low mortality (Johnston and Kelly, 1976). Transabdominal transection using the Russian produced SPTU circular stapling apparatus, permits immediate mucosal apposition, and thus less risk of stricture (Van Kemmel, 1974; Johnston, 1977). In addition, the abdominal approach allows ligation of the left gastric vein at the upper border of the pancreas, and division of all the peri-oesophageal collateral vessels, thereby reducing the chance of recurrent bleeding. We have used this method in 40 patients in whom shunt was contraindicated. Fourteen were emergency transections and although bleeding was controlled initially in all instances, two patients had further serious haemorrhage within a week and both died. There were four other hospital deaths, two from septic peritonitis, one from hepatorenal failure and one from respiratory failure. In the follow-up period extending from one to 27 months, there were three late deaths, but none resulted from haemorrhage. Only two patients have had recurrent variceal bleeding and both responded to injection therapy. Although the initial disappearance of varices on barium studies and endoscopy is dramatic, one is cautious in predicting the long term results at this early stage.

4. Selection

In many clinics, portacaval shunt has been abandoned because of the high incidence of encephalopathy and unconvincing evidence of its worth in the various controlled trials. However, there is undoubtedly a place for portal systemic decompression, but perhaps we must learn to "select better who should be shunted, or to shunt better those we select", as Conn so aptly put it (Conn, 1974).

(a) *Select Better*

After the expenditure of much finance, time and energy on blood flow and pressure studies, we now know that selection on the basis of haemodynamic investigations does not improve the operative risks, the incidence of encephalopathy, or the long term survival (Smith, 1974; Bismuth et al, 1974; Burchell et al, 1974). Neither is there much truth in the old clinical adage, 'The patient who looks well and feels well does well'. End-to-side portacaval shunt, still the most commonly used anastomosis, is easy to perform and carries a low mortality, but in order to reduce the incidence of encephalopathy, the operation should be reserved for Child's Grade A patients under the age of 50 without a past history of diabetes or encephalopathy (Johnston, 1977). In addition, the presence of acute bleeding or active hepatitis should also exclude a patient from consideration for shunt.

(b) *Shunt Better*

The effectiveness of any of the standard portal systemic shunts in preventing haemorrhage is marred by the disturbing incidence of disabling encephalopathy. In this respect, there is little to choose between portacaval, mesentericocaval or conventional splenorenal shunts. This has led to the search for more selective shunts which would effectively decompress the varices without depriving the liver of all its portal blood. In 1967, Warren introduced the exciting concept of the distal splenorenal shunt (Warren et al, 1967). It is technically more difficult than the traditional shunts and carries a significantly higher mortality, but the incidence of encephalopathy is certainly reduced (Galambos et al, 1976; Langer et al, 1977). Although workers in Lund found no improvement in the encephalopathy rates with the distal splenorenal shunt, it should be noted that they did not ligate the main coronary vein as described by Warren, and thus allowed progressively more blood to be diverted from the portal to the systemic systems (Vang et al, 1976). However, even when the identifiable collaterals are ligated, hepatic resistance tends to open up potential pathways between the hypertensive and decompressed circuits, making permanent separation difficult to obtain. Probably the delay in the onset of encephalopathy makes the Warren shunt worthwhile, though it is not an operation to be taken lightly by the occasional shunt surgeon.

The left gastric vena canal shunt may be more truly selective, but it is unlikely to be generally adopted since it is not only more difficult to perform, but it is technically impossible in 10 per cent of patients, and carries a 10 per cent thrombosis rate (Inokuchi et al, 1975).

Over the years, there has been a tendency for individual units involved in the management of bleeding varices to follow the currently popular line of treatment for virtually all patients. Perhaps a more wide range of the whole range of methods is desirable, selecting the best procedure for each individual patient on the basis of what limited knowledge we have. I agree with Dean Warren that 'a surgeon who does the same operation for every patient with portal hypertension does not perform optimally, no matter which operation he chooses' (Warren, 1975).

SUMMARY

Bleeding oesophageal varices present the clinician with one of his most difficult problems in diagnosis and therapy. The need for a flexible approach in the management of individual patients is stressed. After diagnosis and initial control of bleeding, it is suggested that on the basis of clinical judgment, patients should be allocated to one of four treatment groups, namely rejection, injection, transection or selection.

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REFERENCES

- BISMUTH, H., FRANCO, D. and HEPP, J. (1974). Portal systemic shunt in hepatic cirrhosis: does the type of shunt influence the clinical result? *Annals of Surgery*, **179**, 209.
- BURCHELL, A. R., MORENO, A. H., PANKE, W. F. and NEALON, T. F. (1974). Haemodynamic variables and prognosis following portacaval shunts. *Surgery, Gynaecology and Obstetrics*, **138**, 359.
- CHILD, C. G. (1964). *The Liver and Portal Hypertension*. Philadelphia and London, W. B. Saunders & Co., Page 48.
- CONN, H. O. (1958). Hazards attending the use of oesophageal tamponade. *New England Journal of Medicine*, **259**, 701.
- CONN, H. O., BINDER, H. and KRODOFF, M. (1967). Fiberoptic and conventional oesohagscopy in the diagnosis of oesophageal varices. *Gastroenterology*, **52**, 810.
- CONN, H. O. (1974). Therapeutic anastomosis: To shunt or not to shunt. *Gastroenterology*, **67**, 1065.
- DICK, R. (1977). personal communication
- GALAMBOS, J. T., WARREN, W. D., RUDMAN, D. et al (1967). Selective and total shunts in the treatment of bleeding varices. *New England Journal of Medicine*, **295**, 1089.
- INOKUCHI, K., KOBAYASHI, Y. et al (1975). Results of left gastric vena caval shunt for oesophageal varices: analysis of one hundred cases. *Surgery*, **78**, 628.
- JOHNSON, A. G. (1977). Injection sclerotherapy in the emergency and elective treatment of oesophagel varices. *Annals of the Royal College of Surgeons of England*, **59**, 497
- JOHNSTON, G. W. and RODGERS, H. W. (1973). A review of 15 years' experience of sclerotherapy in the control of acute haemorrhage from oesophageal varices. *British Journal of Surgery*, **60**, 797.
- JOHNSTON, G. W. and KELLY, M. (1976). Early experience with the Boerema Button for bleeding oesophageal varices. *British Journal of Surgery*, **63**, 117.
- JOHNSTON, G. W. (1977). Treatment of bleeding varices by oesophageal transection with the SPTU gun. *Annals of the Royal College of Surgeons of England*, **59**, 404.
- JOHNSTON, G. W. (1977). Ten years of systemic shunts. *Ulster Medical Journal*, **46**, 113
- LANCER, R., PATEL, S. and STONE, R. M. (1977). A prospective randomized trial of distal splenorenal (Warren) shunt – a preliminary report. *Paper read to American Gastroenterological Association*, May 1977, Toronto.
- LEE, G. B., SMITH, P. M. and WEBSTER, D. J. T. (1977). Impact of endoscopy on the outcome and management of upper gastrointestinal bleeding. *Paper read to British Society of Gastroenterology*, September 1977, York.

- LUNDERQUIST, A and VANG J. (1974). Transhepatic catheterization and obliteration of the coronary vein in patients with portal hypertension and esophageal varices. *New England Journal of Medicine*, **291**, 646.
- LUNDERQUIST, A. (1977). personal communication.
- MORRIS, D. W., LEVINE, G. M., SOLWAY, R. D. et al (1975). prospective randomized study of diagnosis and outcome in acute upper gastro-intestinal bleeding: endoscopy versus conventional radiology. *American Journal of Disestive Diseases*, **20**, 1103.
- ORLOFF, M. J., CHARTERS, A. C., CHANDLER, J. G. et al (1975). Portacaval shunt as emergency procedure in unselected patients with alcoholic cirrhosis. *Surgery, Gynecology and Obstetrics*, **141**, 59.
- SANDLOW, L. J., BECKER, G. H., SPELLBERG, M. A. et al (1974). A prospective randomized study of management of upper gastrointestinal haemorrhage. *American Journal of Gastroenterology*, **61**, 282.
- SCOTT, J., DICK, R., LONG, R. G. et al (1976). Percutaneous transhepatic obliteration of gastro-oesophageal varices. *Lancet*, **2**, 53.
- SMITH, G. W. (1974). Use of haemodynamic selection criteria in the management of cirrhotic patients with portal hypertension. *Annals of Surgery*, **179**, 782.
- SAGAWA, C., WERNER, M. H., HAYES, D. F. et al (1973). Early endoscopy – a guide to therapy for acute haemorrhage in the upper gastrointestinal tract. *Archives of Surgery*, **107**, 133.
- VANG, J., SIMERT, G., HANSSON, J. A. et al (1976). Results of a modified distal splenorenal shunt for portal hypertension. *Annals of Surgery*, **185**, 224.
- VAN KEMMEL, M. (1974). Resection-anastomose de l'oesophage sus-cardial pour rupture de varices oesophagiennes. *Nouvelle Presse Medicale*, **5**, 1123.
- WARREN, W. D., ZEPPA, R. and FOMON, J. J. (1967). Selective trans-splenic decompression of gastroesophageal varices by distal splenorenal shunt. *Annals of Surgery*, **166**, 437.
- WARREN, W. D. (1975). Surgery of the Liver, Pancrease and Biliary Tract. New Yourk and London, Stratton Intercontinental, page 629.
- WILLIAMS, K. (1977). personal communication.